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A new *Marasmius* on *Castanea sativa* from Turkey

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Abstract — *Marasmius castaneophilus*, a new agaric (*Marasmiaceae, Agaricales, Basidiomycota*) growing on sweet chestnut husks in Turkey, is described and illustrated. Its taxonomic position within the genus is discussed.

Key Words — new taxa, biodiversity, Turkish macromycota

Introduction

Marasmius is a very large genus with as many as 1695 taxa (Anon 2008), even after being critically circumscribed by the transfer of some taxa to *Collybia, Gymnopus, Marasmiellus* and *Setulipes*. It is predominantly tropical in distribution (Singer 1986), with forty-two species now known from Europe (Antonin & Noordeloos 1993).

The species within this restricted concept are often highly specific as to their host requirements. This specificity is not only to the host, but to a particular part of the host colonized, whether it be leaf lamina, midrib or petiole (Watling 1982). Traditionally the genus was split into those with pileipellis in the form of Rameales-structure, viz. cutis of diverticulate hyphae, and setiform stipe (sect. *Androsacei* Kühner, = *Setulipes* Antonín) and those with a hymeniform pileipellis (other *Marasmius* sections). As traditionally accepted, the genus

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This article is dedicated to Dr. Fadime Yılmaz (1971-2005), Muğla University, who made many contributions to our knowledge of Turkish macrofungi (including members of the genus *Marasmius*) but, sadly, died in a car accident in 2005.

Marasmius contains a group of white or pale coloured, small fruitbodies usually characterized as having an insititious stipe and well-developed cystidia and referred to sect. *Epiphylli* Kühner. European representatives of this section include *M. epiphylloides, M. epiphyllus, M. hellebori-corsici, M. saccharinus, M. setosus,* and *M. tremulae (= M. favrei).* However, molecular studies place this section not in *Marasmius* s. str., but rather close to the *Physalacriaceae* (Owings & Desjardin 1997, Moncalvo et al. 2002, Wilson & Desjardin 2005), restricting the genus *Marasmius* only to representatives of the sections *Marasmius, Sicci, Globulares, Hygrometrici, Neosessiles* and *Leveilleani.* Recent studies in Turkey have encountered an additional member of the group related to *M. epiphylloides* that is apparently confined to colonizing the husks of *Castanea sativa.* The species described formally below raises the total number of members of *Marasmius* in Turkey to 23 (Solak et al. 2007).

Taxonomic description

Marasmius castaneophilus Işıloğlu, Allı, Solak & Watling, **sp. nov.** FIGS. 1–5

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Pileus 4–4.5 mm convexus vel plano-convexus prostremo plano, interdum depressus, albus, radiato-striatus vel radiato-sulcatus ad marginem interdum undulato-lobatus. Lamellae lato-adnatae, distantes, furcatae, plicatae, albae. Stipes 20–30 × 0.5–1 mm., filiformes vulgo flexuosus, glabrus, ad apicem hyalinum prostremo ad basim rufo-brunneum, vulgo senecutate infra atro-ferrugineus. Caro albo. Odor, sapor nullus. Sporae 10–12 × 4–5 µm, ellipsoideo-oblongae vel fusiformae, laevae, hyalinae, inamyloideae. Basidia 45–50 × 4–6 µm, 4-sporigera. Cystidia faciei lamellarum fusiformia vel clavata, tenuio-tunicata; cystidia aciei lamellarum 1) 30–40 × 5–8 µm, subfusiformia vel lageniformia et 2) 15–35 × 15–20 µm, clavata vel pyriformia ornamentiae. Cellulae cuticulae pilei hymeniformae 1) 15–18 × 8–10 µm, clavata, tenuio-tunicata – 'rotalis-typus' et 2) 20–27 × 4–5 µm, fusiformiae vel lageniformiae, tenuio-tunicata, laevae. Hyphae fibulatae. Trama inamyloideae. Ad Castanea sativa cupulus. Turkey; İzmir, Ödemiş Typus Ha 2842 in E.

PILEUS 4–4.5 mm, convex to plano-convex then irregularly applanate, sometimes depressed, white, radially striate or grooved with undulating margin (FIG. 1). GILLS broadly adnate, poorly developed, distant, vein-like, forked, plicate and without lamellulae, always white. STIPE 20–30 × 0.5–1 mm., hair-like, central, rarely eccentric, glabrous, smooth, twisted when dry, stiff and tough, hyaline when young, reddish brown below when old, blackish brown when dry. FLESH very thin and white. SMEL AND TASTE indistinct. SPORE PRINT White. SPORES 10–12 × 4–5 µm, fusiform to narrowly ellipptic with a long apiculus (FIG. 2), smooth, thin-walled, colourless in alkali, inamyloid. BASIDIA 45–50 × 4–6 µm, clavate, hyaline, thin-walled, 4-spored, with clamps. BASIDIOLES 35–40 × 4–5 µm, clavate, with clamps. PLEUROCYSTIDIA 40–70 × 9–12 µm, fusiform to clavate, thin-walled and hyaline (FIG. 3). CHEILOCYSTIDIA of two types; 1. type: 30–40 × 5–8 µm subfusiform to lageniform with long neck, thin-walled (FIG.

Fig. 1. *Marasmius castaneophilus* (from holotype; photo by H.Allı)

4). 2. type: 15–35 × 15–20 µm, broom cells of the rotalis-type, broadly clavate to pyriform with projections. Pileipellis hymeniform, a mixture of three types of elements. 1) 15–18 × 8–10 µm, clavate, thin-walled, rotalis-type cells with long projections 2) smooth clavate cells and 3) 20–27 × 4–5 µm, fusiform or lageniform, thin-walled and smooth (Fig. 5); the former the most common. Clamp-connections present.

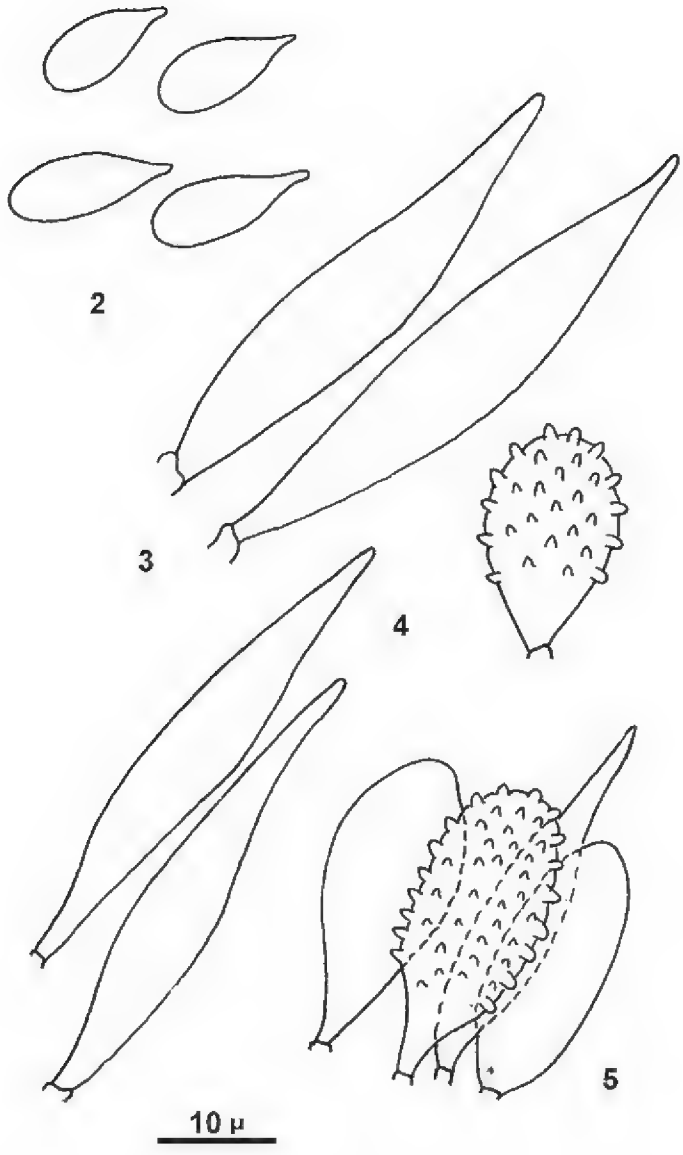
Chemical reactions. No part of basidiome dextrinoid or amyloid.

Habitat. In clusters on dead husks of *Castanea sativa*.

Specimen examined. Turkey; İzmir, Ödemiş, Elmabağı village, in natural forest of mixed *Pinus nigra* and *Castanea sativa*, 11 November 2007, Ha 2842. **Holotype:** in E.

Discussion

Marasmius castaneophilus is easily recognized in the field by its unique habitat on sweet chestnut husk, pure white pileus surmounting a stipe that becomes red brown upwards with age, lanceolate pileocystidia, and large basidiospores. Following Antonín & Noordeloos (1993), this species belongs to sect. *Epiphylli* subsect. *Epiphylloidei* Singer, whose taxa are characterized by having pilepellis composed of a mixture of smooth cells and rotalis-type broom cells, absence of distinct collarium, marasmoid or collybioid basidiomes, filiform and insititious



Figs. 2–5. *Marasmius castaneophilus* (from holotype).
2. spores, 3. pleurocystidia, 4. cheilocystidia, 5. pileipellis

stem, white or pale pileus, vein-like and reduced gills, and non-dextrinoid hyphae. It is closely related to *M. epiphylloides* (Rea) Sacc. & Trotter and can be distinguished confidently both morphologically and microscopically. *Marasmius castaneophilus* has a longer hair like stem, larger basidiospores, and two types of cheilocystidia. It also differs by its association with sweet chestnut husks.

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